

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A method of construction of a moulded product which includes the steps of:

- 5 (a) impregnating non-metallic fibres in epoxy resin whereby said impregnated fibres may be arranged to form a sheet of said fibres;
- (b) cutting a plurality of pre-pregs from said sheet formed in step (a);
- 10 (c) forming successive layers of said pre-pregs obtained from step (b) so that said layers are arranged in stacked relationship in a mould cavity of a compression mould;
- (d) compression moulding at elevated temperature; and
- (e) removing the moulded product from the compression mould.

2. A method as claimed in claim 1 wherein in step (a)

15 use is made of a drum winding technique whereby said impregnated fibres are wound onto a drum so as to provide an intermediate composite sheet formed of the fibres supported on a sheet of release paper on the drum, whereby upon removal of the release paper, the sheet formed by step (a) is obtained by cutting the intermediate sheet as it is supported on the

20 drum.

3. A method as claimed in claim 1 wherein use is made of a hot melt technique wherein after hot melt resin impregnation of the fibres they are laid onto a continuous sheet of release paper and subsequently stored as rolls.

4. A method as claimed in claim 1 wherein in step (a) the sheet has all of its fibres arranged in the same or similar orientation or direction.

5. A method as claimed in claim 1 wherein in step (b)  
5 each pre-preg has all of its fibres arranged in a longitudinal orientation.

6. A method as claimed in claim 5 wherein in step (b) after a folding step each pre-preg have all of their fibres arranged in an intersecting orientation.

7. A method as claimed in claim 1 wherein in step (b)  
10 the intermediate sheet is cut at a variety of different angles selected from the group consisting of  $15^\circ$ ,  $22^{1/2^\circ}$ ,  $30^\circ$ ,  $45^\circ$  and  $60^\circ$  so that the final sheet has sloping sides having the relevant angle to vertical before folding of the final sheet upon itself to form said pre-preg.

8. A method as claimed in claim 7 wherein the angle is  
15 selected from  $30^\circ$  and  $45^\circ$ .

9. A method as claimed in claim 5 wherein in step (c) successive layers are formed of pre-pregs having fibres arranged in an intersecting orientation which alternate with pre-pregs having fibres arranged in a longitudinal and/or latitudinal orientation.

10. A method as claimed in claim 1 wherein the  
20 intermediate sheet is formed by longitudinally and/or latitudinally oriented fibres so as to provide a sheet which is in the shape of a rectangle or square.

11. A method as claimed in claim 2 wherein the cutting of

the intermediate sheet is carried out by provision of cutting lines or grooves which are formed in an outer surface of the drum at an angle selected from the group consisting of 15°, 22<sup>1/2</sup>°, 30°, 45° and 60° for pre-pregs of intersecting fibres and 0° for pre-pregs of longitudinal and latitudinal fibres.

12. A method as claimed in claim 1 wherein step (d) is carried out in a mould cavity having the same dimensions for different weights or different weight categories of moulded product.

13. A moulded product characterised in that said moulded product is formed from composite materials having layers of non-metallic fibres impregnated with an epoxy thermosetting resin, characterized in that said moulded product is formed at least partly from layers of non continuous or cut fibres wherein at least some of the fibres are arranged in an intersecting orientation.

14. A moulded product as claimed in claim 13 in the form of a pylon.

15. A moulded product as claimed in claim 13 in the form of a J shaped pylon.

16. A moulded product as claimed in claim 13 in the form of a sole plate.

17. A moulded product as claimed in claim 13 in the form of a combination of a J shaped pylon attached to a sole plate so as to define a lower limb prosthetic device.

18. A moulded product as claimed in claim 13 wherein the

pylon at least in outer extremities thereof is formed from a laminate of alternating layers of said intersecting fibres with layer(s) of said fibres arranged in longitudinal and latitudinal orientation.

5 19. A moulded product as claimed in claim 15 wherein the J shaped pylon has an upper shin mounting portion, a lower shin portion and an ankle zone.

20. A moulded product as claimed in claim 19 wherein the upper shin mounting portion has a substantially constant thickness and width.

10 21. A moulded product as claimed in claim 19 wherein the lower shin portion has a width that diverges outwardly as it approaches the ankle zone.

15 22. A moulded product as claimed in claim 19 wherein the ankle zone at or approaching a lower or free end thereof has a slight concave curvature.

23. A moulded product as claimed in claim 16 wherein the sole plate is of substantial width compared to an ankle zone of the J shaped pylon.

20 24. A moulded product as claimed in claim 16 wherein the sole plate has a heel portion and a toe portion.

25. A moulded product as claimed in claim 23 wherein the sole plate has a heel portion and a toe portion and the heel portion has a complementary or corresponding curvature to the ankle zone where they abut each other.

26. A moulded product as claimed in claim 13 which has substantially the same dimensions and shape regardless of weight.

27. A pre peg having a plurality of resin impregnated non metallic fibres which are all orientated in a direction parallel with each other wherein at least some of said fibres have been cut to have a similar length.

28. A pre peg having a plurality of resin impregnated non metallic fibres which have been cut to achieve an orientation whereby at least some of the fibres intersect with each other.